

U.S. Department of Energy
Office of River Protection
Mr. Michael K. Barrett
Contracting Officer
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

CCN: 040367

Dear Mr. Barrett:

**CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL FOR APPROVAL –
AUTHORIZATION BASIS CHANGE NOTICE 24590-WTP-ABCN-ESH-02-026,
REVISION 0, *COMPLIANCE WITH DOE O-420.1, FACILITY SAFETY***

Reference: CCN 032103, Letter, R. C. Barr, ORP, to R. F. Naventi, BNI, "Office of Safety Regulation (OSR) Application of DOE Order 420.1 Requirements to the River Protection Project Waste Treatment Plant (RPP-WTP)," 02-OSR-0152, dated April 15, 2002.

Bechtel National, Inc. (BNI) is submitting Authorization Basis Change Notice (ABCN), 24590-WTP-ABCN-ESH-02-026, Revision 0, to the U.S. Department of Energy (DOE), Office of River Protection and the Office of Safety Regulation (OSR) for approval (attached). This ABCN proposes to change the Safety Requirements Document to comply with the safety design criteria in DOE Order 420.1 (reference letter). Specific major changes include fire separation requirements for Safety Design Class components (for protection of the public only) and preparation of a Maximum Possible Fire Loss analysis.

Approval of this ABCN is requested in conjunction with the Low Activity Waste and High Level Waste Construction Authorization.

An electronic copy of ABCN 24590-WTP-ABCN-ESH-02-026, Revision 0, is provided for the OSR's information and use.

Please contact Mr. Bill Spezialetti at (509) 371-4654 for any questions or comments.

Very truly yours,

A. R. Veirup
Prime Contract Manager

TR/slr

Attachment: Authorization Basis Change Notice (ABCN), 24590-WTP-ABCN-ESH-02-026,
Revision 0, plus attachments

cc: Name (ALPHABETIZE)	Organization	MSIN
Barr, R. C. w/a (1 hard copy and 1 electronic copy)	OSR	H6-60
Beranek, F. w/o	WTP	MS6-P1
Betts, J. P. w/a	WTP	MS4-A1
DeGarmo, T. G. w/a	WTP	MS6-R1
Dickey, R. L. w/o	WTP	MS6-R1
DOE Correspondence Control w/a	ORP	H6-60
Erickson, L. w/o	ORP	H6-60
Gibson, K. D. w/a	WTP	MS6-R1
Klein, D. A. w/a	WTP	MS6-P1
Naventi, R. F. w/a	WTP	MS4-A1
PDC w/a	WTP	MS5-K.1
Ollero, J. E. w/o	ORP	H6-60
Ryan, T. B. w/a	WTP	MS6-R1
Schepens, R. J. w/o	ORP	H6-60
Spezialetti, W. R. w/o	WTP	MS6-P1
Struthers, D. J. w/o	ORP	H6-60
Swailles, J. H. w/a	ORP	H6-60
Taylor, W. J. w/a	ORP	H6-60
Veirup, A. R. w/o	WTP	MS4-A1



ABCN Title	Compliance with DOE-O-420.1 Facility Safety
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A. ABCN Preparation

Preparer:	Troy DeGarmo		
	<i>Print/Type Name</i>	<i>Signature</i>	<i>Date</i>

Reviewer: John Duke

<hr/> <i>Print/Type Name</i>	<hr/> <i>Signature</i>	<hr/> <i>Date</i>
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Review Required? *For each person checked, that signature block must be completed.*

<input checked="" type="checkbox"/>	ES&H Manager	Fred Beranek		
		<i>Print/Type Name</i>	<i>Signature</i>	<i>Date</i>

<input checked="" type="checkbox"/>	QA Manager	George Shell		
		<i>Print/Type Name</i>	<i>Signature</i>	<i>Date</i>

<input checked="" type="checkbox"/>	PSC Chair	Bill Poulson		
		<i>Print/Type Name</i>	<i>Signature</i>	<i>Date</i>

☐ Commissioning/Training Manager _____
Print/Type Name Signature Date

<input checked="" type="checkbox"/>	Engineering Manager	Fred Marsh		
		<i>Print/Type Name</i>	<i>Signature</i>	<i>Date</i>

☐ Construction Manager _____
Print/Type Name Signature Date

☐ Area Project Manager _____
Print/Type Name Signature Date

☐ Research & Technology Manager _____
Print/Type Name *Signature* *Date*

<input checked="" type="checkbox"/>	PMT Chair	Dennis Klein		
		<i>Print/Type Name</i>	<i>Signature</i>	<i>Date</i>

<input type="checkbox"/>	Other Affected Organization	<hr/>	<hr/>	<hr/>
		<i>Print/Type Name</i>	<i>Signature</i>	<i>Date</i>

<input type="checkbox"/>	Other Affected Organization	<i>Print/Type Name</i>	<i>Signature</i>	<i>Date</i>
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☐ Other Affected Organization _____

WTP Project Manager	Ron Naventi		
	<i>Print/Type Name</i>	<i>Signature</i>	<i>Date</i>



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II. Description of the Proposed Change to the Authorization Basis

D. Affected AB Documents:

Title	Document Number	Revision
Safety Requirements Document	24590-WTP-SRD-ESH-01-001-02	1

Decision to Deviate ☐ Yes ☒ No

If yes, DTD Number/Revision

DTD Closure Date:

Initiating Document Number/Revision CCN 032103 (OSR ltr # 02-OSR-0152)

4/16/02

E. Describe the proposed changes to the Authorization Basis Documents:

1) Section 3.3, Criticality

SC 3.3-1 – Add compliance with the requirements of DOE Order 420.1, Section 4.3, Nuclear Criticality Safety to the safety criterion.

SC 3.3-3 through 3.3-8 – Delete these safety criteria.

Section 4.5 Fire Protection

2) SC 4.5 All SCs – Replace implementing standard DOE G-440.1 with DOE-O-420.1.

3) SC 4.5-3, 5, 15, 16, and 22 – Change “should” and “will” to “shall”.

4) SC 4.5-9, 14, 18, and 20 – Add DOE-O-420.1 requirements not already included in the safety criteria.

5) Add new safety criteria 4.5-24 and 4.5-25 to address DOE-O-420.1 requirements not included in the existing safety criteria.

F. List associated ABCNs and AB documents, if any:

None

G. Explain why the change is needed:

These changes establish compliance with the design criteria of DOE-O-420.1 as directed in CCN 032103.

H. List the implementation activities and the projected completion dates:

Activity

Date

Inform DOE that AB has been revised and formally transmit electronic version

30 days or
less after
DOE
approval

Distribute revised controlled copy pages / update WTP Library

30 days after
approval

Revise the following implementing documents:



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Documents

Describe extent of revisions

Date

1 NA

2

Describe other activities:

Date

1 NA

2

III. Evaluation of the Proposed Change

I. Is DOE approval required? Answer questions for Administrative Control changes OR Facility changes, not both.

For an Administrative Control change:

Yes

No

1. Does the revision involve the deletion or modification of a standard previously identified or established in the SRD?

☐☐

Explain:

2. Does the revision result in a reduction in commitment currently described in the AB?

☐☐

Explain:

3. Does the revision result in a reduction in the effectiveness of any procedure, program, or plan described in the AB?

☐☐

Explain:

For a Facility (technical) change:

Yes

No

1. Does the revision involve the deletion or modification of a standard previously identified or established in the SRD?

☒☐

Explain:

These changes modify safety criteria as described in Section E.

2. Does the revision create a new Design Basis Event (DBE)?

☐☒

Explain:

1) This change does not alter the design of the facility or administrative controls related to criticality safety or introduce new SSCs or administrative controls that could create a new DBE.

2) Replacing the implementing standard with DOE-O-420.1 does not affect the implementation of the safety criteria. The order is more restrictive than the existing guide. This change does not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could



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create a new DBE.

3) Changing “should” and “will” to “shall”, consistent with DOE-O-420.1, is more restrictive and does not affect the implementation of the safety criteria. This change does not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could create a new DBE except for SC 4.5-5. Changing the “should” to “shall” in SC 4.5-5 requires all redundant SDC SSCs, for the protection of the public, to be located in separate fire areas or protected by equivalent design/means. This will result in an increase in the protection of these redundant SDC SSCs from fires and does not create a new DBE.

4) The additional requirements and clarifications are programatic and administrative in nature. These changes do not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could create a new DBE.

5) The new criteria are programatic and do not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could create a new DBE.

3. Does the revision result in the more than a minimal increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?

☐☒

Explain:

1) This change does not alter the design of the facility or administrative controls related to criticality safety or introduce new SSCs or administrative controls that could increase the frequency of an analyzed DBE described in the Safety Analysis Report.

2) Replacing the implementing standard with DOE-O-420.1 does not affect the implementation of the safety criteria. The order is more restrictive than the existing guide. This change does not alter the design of the facility or administrative controls related to criticality safety or introduce new SSCs or administrative controls that could increase the frequency of an analyzed DBE described in the Safety Analysis Report..

3) Changing “should” and “will” to “shall”, consistent with DOE-O-420.1, is more restrictive and does not affect the implementation of the safety criteria. This change does not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could increase the frequency of an analyzed DBE described in the Safety Analysis Report except for SC 4.5-5. Changing the “should” to “shall” in SC 4.5-5 requires all redundant SDC SSCs, for the protection of the public, to be located in separate fire areas or protected by equivalent design/means. This will result in an increase in the protection of these redundant SDC SSCs from fires and does not increase the frequency of an analyzed DBE described in the Safety Analysis Report .

4) The additional requirements and clarifications are programatic and administrative in nature. These changes do not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could increase the frequency of an analyzed DBE described in the Safety Analysis Report.

5) The new criteria are programatic and do not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could increase the frequency of an analyzed DBE described in the Safety Analysis Report.



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4. Does the revision result in more than a minimal decrease in the Safety Functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?

☐☒

Explain:

1) This change does not alter the design of the facility or administrative controls related to criticality safety or introduce new SSCs or administrative controls that could decrease the safety functions of ITS SSCs or change how a SDC SSC meets its safety function.

2) Replacing the implementing standard with DOE-O-420.1 does not affect the implementation of the safety criteria. The order is more restrictive than the existing guide. This change does not alter the design of the facility or administrative controls related to criticality safety or introduce new SSCs or administrative controls that could decrease the safety functions of ITS SSCs or change how a SDC SSC meets its safety function.

3) Changing “should” and “will” to “shall”, consistent with DOE-O-420.1, is more restrictive and does not affect the implementation of the safety criteria. This change does not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could decrease the safety functions of ITS SSCs or change how a SDC SSC meets its safety function except for SC 4.5-5. Changing the “should” to “shall” in SC 4.5-5 requires all redundant SDC SSCs, for the protection of the public, to be located in separate fire areas or protected by equivalent design/means. This will result in an increase in the protection of these redundant SDC SSCs from fires and does not decrease the safety functions of ITS SSCs or change how a SDC SSC meets its safety function.

4) The additional requirements and clarifications are programmatic and administrative in nature. These changes do not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could decrease the safety functions of ITS SSCs or change how a SDC SSC meets its safety function.

5) The new criteria are programmatic and do not alter the design of the facility or administrative controls related to fire protection or introduce new SSCs or administrative controls that could decrease the safety functions of ITS SSCs or change how a SDC SSC meets its safety function.

J. Complete the safety evaluation by describing how the revision to the AB:

1. will continue to comply with all applicable laws and regulations (e.g., 10 CFR 830, 10 CFR 835), conform to top-level safety standards (e.g., DOE/RL-96-0006), and provide adequate safety.

Incorporating additional requirements contained in DOE-O-420.1 does not decrease the effectiveness of the existing safety criteria and they will continue to comply with all applicable laws and regulations, conform to top-level safety standards, and provide adequate safety.

2. will continue to conform to the contract requirements associated with the authorization basis document(s) affected by the revision.

Conformance with DOE-O-420.1 is consistent with 10CFR830 which is a contractual requirement.

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3. will not result in inconsistencies with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised.

These changes will require an update to the PSAR for construction authorization, Chapter 18, Fire Protection. This document has been submitted for DOE review and will be updated after approval of this ABCN.

K. Justification of the Proposed Change

The replacement of DOE G-440.1, *Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program* with DOE-O-420.1 *Facility Safety* represents a move from a “guide” which is inherently less stringent to an “order”. The majority of the changes proposed in this ABCN are programmatic in nature. Where the design is impacted with additional requirements (separate redundant safety class systems) then the overall design is made safer. Therefore, the WTP Project will not see a decrease in its safety commitment.

Attachment 2 of this ABCN provides additional discussion on the justification that demonstrates that the proposed changes are safe.

L. Certification of Continued SRD Adequacy

Based on evaluations from III.I, if either question III.I.1 is marked “Yes”, Project Manager certification is required. The Project Manager’s signature certifies that the revised SRD continues to identify a set of standards that provides adequate safety, complies with WTP applicable laws and regulations, and conforms with top-level safety standards and principles. This certification is based on adherence to the DOE/RL-96-0004 standards identification process and successful completion of review and confirmation by the PSC.

WTP Project Manager: Ron Naventi

Print/Type Name *Signature* *Date*

M. List of Attachments

1. Attachment 1, *Proposed Changes to the SRD*
2. Attachment 2, *Summary of ISM Process for Revision to Implementing Standards and Safety Criteria*

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Attachment 1

Proposed Changes to the *Safety Requirements Document*

Document Part	Title	Starting Page	No. of Pages
Section 3.0	Nuclear and Process Safety	3-1	8
Section 4.5	Fire Protection	4.5-1	8

of pages (including cover sheet): 17

3.0 Nuclear and Process Safety

3.1 Hazards Analysis

Safety Criterion: 3.1 - 1

An initial process hazard analysis (hazard evaluation) shall be performed using acceptable industry practices. The analysis shall include consideration of both chemical and radiological hazards. The process hazard analysis shall be appropriate to the complexity of the process and shall identify, evaluate, and document the design features which control the hazards involved in the process.

The process hazard analysis shall be performed by a team with expertise in engineering and process operations, and the team shall include at least one member who has experience and knowledge specific to the process being evaluated. Also, one member of the team must be knowledgeable in the specific process hazard analysis methodology being used.

Implementing Codes and Standards

24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document Volume II*

Appendix A, "Implementing Standard for Safety Standards and Requirements Identification"

Regulatory Basis

DOE/RL-96-0006 5.2.2 *Process Hazard Analysis*

Safety Criterion: 3.1 - 2

A compilation of written process safety information appropriate to the stage of design being considered shall be completed to support the process hazard analysis. The compilation of written process safety information enables the employer and the employees involved in operating the process to identify and understand the hazards posed by those processes involving radioactive materials and process chemicals considered to pose a hazard. This process safety information shall include information pertaining to the hazards of the materials used or produced by the process, information pertaining to the technology of the process, and information pertaining to the equipment in the process.

- (1) Information pertaining to the hazards of the materials in the process including:
 - (a) Toxicity information
 - (b) Permissible exposure limits
 - (c) Physical data
 - (d) Reactivity data
 - (e) Corrosivity data
 - (f) Thermal and chemical stability data
 - (g) Hazardous effects of inadvertent mixing of different materials that could foreseeably occur

<p style="text-align: center;">River Protection Project - Waste Treatment Plant Safety Requirements Document Volume II 24590-WTP-ABCN-ESH-02-026, Rev. 0, Attachment 1</p>

3.0 Nuclear and Process Safety

- (2) Information pertaining to the technology of the process including at least the following:
 - (a) A block flow diagram or simplified process flow diagram
 - (b) Process chemistry
 - (c) Maximum intended inventory
 - (d) Safe upper and lower limits for such items as temperatures, pressures, flows or compositions
 - (e) An evaluation of the consequences of deviations, including those affecting the safety and health of employees
- (3) Information pertaining to the equipment in the process including:
 - (a) Materials of construction
 - (b) Process drawings or piping and instrument diagrams (P&IDs)
 - (c) Electrical classification
 - (d) Relief system design and design basis
 - (e) Ventilation system design
 - (f) Design codes and standards employed
 - (g) Material and energy balances
 - (h) Safety systems (e.g., interlocks, detection or suppression systems)

The records shall be maintained documenting that equipment complies with recognized and generally accepted good engineering practices. The safety information shall be kept up-to-date.

Implementing Codes and Standards

Regulatory Basis

<i>DOE/RL-96-0006</i>	<i>5.2.1</i>	<i>Process Safety Information</i>
<i>DOE/RL-96-0006</i>	<i>5.2.2</i>	<i>Process Hazard Analysis</i>

Safety Criterion: 3.1 - 3

The process hazard analysis shall address:

- (1) The hazards of the process
- (2) Engineering and administrative controls applicable to the hazards and their interrelationships such as appropriate application of detection methodologies to provide early warning of releases. (Acceptable detection methods might include process monitoring and control instrumentation with alarms, and detection hardware.)
- (3) Consequences of failure of engineering and administrative controls
- (4) Facility siting
- (5) Human factors
- (6) A qualitative evaluation of a range of the possible safety and health effects of failure of controls on employees in the workplace
- (7) Common-mode and common-cause failure events

<p style="text-align: center;">River Protection Project - Waste Treatment Plant Safety Requirements Document Volume II 24590-WTP-ABCN-ESH-02-026, Rev. 0, Attachment 1</p>

3.0 Nuclear and Process Safety

Implementing Codes and Standards

24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document Volume II*

Appendix A, "Implementing Standard for Safety Standards and Requirements Identification"

Regulatory Basis

DOE/RL-96-0006 5.2.2 *Process Hazard Analysis*

Safety Criterion: 3.1 - 4

The hazard analysis shall be performed in accordance with the following requirements:

- (1) The consequences of unmitigated releases of radioactive material and process chemicals considered to pose a hazard shall be evaluated.
- (2) The hazard analysis shall be based on an inventory of all radioactive and hazardous nonradioactive materials that are stored, utilized, or may be formed within the facility.
- (3) The hazard analysis shall identify energy sources or processes that might contribute to the generation or uncontrolled release of radioactive or process chemicals considered to pose a hazard. The hazard analysis shall estimate the consequences of accidents in which the facility or process and/or materials in the inventory are assumed to interact, react, or be released in a manner to produce a threat or challenge to the health and safety of individuals on-site and off site.
- (4) The risks that hazardous inventories and energy sources present shall be evaluated by consideration of normal operation (including startup, testing, and maintenance), anticipated operational occurrences, and accident conditions. The identification of anticipated operational occurrences and accident conditions shall consider internal events (i.e., equipment failure and human error), external events (e.g., nearby facilities and transportation), and natural phenomena.

Implementing Codes and Standards

24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document Volume II*

Appendix A, "Implementing Standard for Safety Standards and Requirements Identification"

Regulatory Basis

DOE/RL-96-0006 3.3.3 *Accident Vulnerability Mitigation*

DOE/RL-96-0006 5.2.2 *Process Hazard Analysis*

Safety Criterion: 3.1 - 5

A written plan of action shall be developed regarding employee participation in the conduct and development of process hazards analyses and on the development of process safety management. Employees and their representatives shall be consulted on the conduct and development of process hazards analyses and on the development of the other elements of process safety management. Employees and their representatives shall be provided access to process hazard analyses and other information developed related to process safety.

Implementing Codes and Standards

24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document Volume II*

Appendix A, "Implementing Standard for Safety Standards and Requirements Identification"

<p style="text-align: center;">River Protection Project - Waste Treatment Plant Safety Requirements Document Volume II 24590-WTP-ABCN-ESH-02-026, Rev. 0, Attachment 1</p>

3.0 Nuclear and Process Safety

Regulatory Basis

Safety Criterion: 3.1 - 6

A system shall be established to promptly address the hazard analysis team's findings and recommendations; assure that the recommendations are resolved in a timely manner; and that the resolution is documented. The contractor shall document what actions are to be taken; complete actions; develop a written schedule of when these actions are to be completed; communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.

Implementing Codes and Standards

24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document Volume II*

Appendix A, "Implementing Standard for Safety Standards and Requirements Identification"

Regulatory Basis

DOE/RL-96-0006 5.2.2 *Process Hazard Analysis*

Safety Criterion: 3.1 - 7

The process hazard analysis shall be updated to reflect changes concurrently with the annual update of the FSAR by a qualified team, to assure that the process hazard analysis is consistent with the current process.

Implementing Codes and Standards

24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*

Section 3.3.3, "Changes to Safety Documentation"

Section 5.6.2, "Updating of the Hazard Analysis Report"

Regulatory Basis

DOE/RL-96-0006 5.2.2 *Process Hazard Analysis*

Safety Criterion: 3.1 - 8

Employers shall retain process hazards analyses and updates or revalidations as well as the documented resolution of any recommendations for the life of the process.

Implementing Codes and Standards

Regulatory Basis

3.2 Accident Analysis

Safety Criterion: 3.2 - 1

Acceptable risk analyses shall be applied during the design to delineate provisions for the prevention and mitigation, including emergency preparedness and response, of otherwise risk-dominant events.

Implementing Codes and Standards

24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document Volume II*

Appendix A, "Implementing Standard for Safety Standards and Requirements Identification"
DOE/RL-94-02, *Hanford Emergency Management Plan*, as tailored in SRD Volume II, Appendix C

Regulatory Basis

DOE/RL-96-0006 4.2.1.2 *Design-Risk Assessment*

3.3 Criticality

Safety Criterion: 3.3 - 1

The facility shall be designed and operated in a manner that prevents nuclear criticality and that complies with the requirements of DOE Order 420.1 (DOE O 420.1), Section 4.3, Nuclear Criticality Safety.

Implementing Codes and Standards

DOE O 420.1, Facility Safety ~~ANSI/ANS 8.1-1983 (R-1988), *Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors*~~
~~ANSI/ANS 8.19-1996, *Administrative Practices for Nuclear Criticality Safety*~~

Regulatory Basis

~~DOE/RL-96-0006 4.2.2.5 *Proven Engineering Practices/Margins Criticality*~~

Safety Criterion: 3.3 - 2

The design of handling, packaging, transfer, and storage systems must include margins of safety for the nuclear criticality parameters that are commensurate with the uncertainties in the data and methods used in calculations and in the nature of the immediate environment under accident conditions.

The multiplication factor (k_{eff}), including all biases and uncertainties at a 95% confidence level, shall be shown to not exceed 0.95 under all credible normal, off-normal, and accident conditions.

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3.0 Nuclear and Process Safety

Safety Criterion: ~~3.3-3~~

~~Process designs shall incorporate sufficient factors of safety to require at least two unlikely, independent, and concurrent changes in process conditions before a criticality accident is possible. Protection shall be provided by either:~~

- ~~(1) the control of two independent process parameters (which is the preferred approach, when practical, to prevent common mode failure), or~~
- ~~(2) a system of multiple controls on a single process parameter.~~

~~The number of controls required for a single controlled process parameter shall be based upon control reliability and any features that mitigate the consequences of control failure. In all cases, no single credible event or failure shall result in the potential for a criticality accident.~~

~~An exception to the application of double contingency, where single contingency operations are permissible, is presented in paragraph 5.1 of ANSI/ANS 8.10-1983, R88. This exception applies to operations with shielding and confinement (e.g., hot cells or other shielded facilities).~~

~~Double contingency shall be demonstrated by documented evaluations.~~

Safety Criterion: ~~3.3-4~~

~~Where a sufficient quantity of fissionable material is being processed such that criticality safety is a concern, passive engineered controls, such as geometry control, shall be considered as the preferred control method. Where passive engineered control is not feasible, the preferred order of controls is active engineered controls followed by administrative controls. The double contingency analysis shall justify the chosen controls. Full advantage may be taken of any nuclear characteristics of the process materials and equipment. The geometry must be considered as water moderated and reflected unless it can be shown the presence of water is not credible. All dimensions, nuclear properties, and other features upon which reliance is placed shall be documented and verified prior to beginning operations, and control shall be exercised to maintain them.~~

Safety Criterion: ~~3.3-5~~

~~To protect against an uncontrolled nuclear criticality incident, nuclear criticality safety considerations and controls shall be evaluated for accidents, normal operations, and before any significant operational changes are made.~~

Safety Criterion: ~~3.3-6~~

~~Criticality Accident Alarm Systems (CAS) and Criticality Detection Systems (CDS) shall be required as follows:~~

- ~~(1) In those locations where the mass of fissionable material exceeds the limits established in Table 3-1 Inventory of Fissionable Material and the probability of a criticality accident is greater than 1E-06 per year, a CAS conforming to ANSI/ANS 8.3-1986 shall be provided to cover occupied areas in which the expected dose exceeds 12 rads (0.12 greys) in free air, where a CAS is defined to include a criticality accident detection device and a personnel evacuation alarm.~~

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3.0 Nuclear and Process Safety

~~(2) In those locations where the mass of fissionable material exceeds the limits established in Table 3-1 Inventory of Fissionable Material and the probability of a criticality accident is greater than 1E-06 per year, but there are no occupied areas in which the expected dose exceeds 12 rads (0.12 greys) in free air, a CDS shall be provided, where a CDS is defined to be an appropriate criticality accident detection device but without an immediate evacuation alarm. The CDS response time should be sufficient to allow for appropriate process-related mitigation and recovery actions. Appropriate response guidance to minimize personnel exposure shall be provided.~~

~~(3) In those locations where the mass of fissionable material exceeds the limits established in Table 3-1 Inventory of Fissionable Material, but a criticality accident is determined to be impossible due to the physical form of the fissionable material, or the probability of occurrence is determined to be less than 1E-06 per year, neither a CAS nor a CDS is required. Neither a CAS nor a CDS is required for fissionable material during shipment when packaged in approved shipping containers, or when packaged in approved shipping containers awaiting transport provided that no other operation involving fissionable material not so packaged is permitted on the shipping dock or in the shipment area.~~

~~(4) If a criticality accident is possible wherein a slow (i.e., quasistatic) increase in reactivity could occur leading from subcriticality to criticality to self shutdown without initiating employed criticality alarms, CASs should be supplemented by warning devices such as audible personnel dosimeters (e.g., pocket chirpers/flashers, or their equivalents), area radiation monitors, area dosimeters, or integrating CASs to aid in protecting workers against the consequences of slow criticality accidents.~~

~~(5) Neither a CAS nor a CDS is required to be installed for handling or storage of fissionable material when sufficient shielding exists that is adequate to protect personnel (e.g., hot cells); however, a means to detect fission product gases or other volatile fission products shall be provided in occupied areas immediately adjacent to such shielded areas, except for systems where no fission products are likely to be released.~~

~~Note: The frequency of 1E-06 per year is used as a measure of credibility and does not require a probabilistic risk assessment be performed. Reasonable grounds for incredibility may be presented on the basis of commonly accepted engineering judgement.~~

~~Table 3-1. Inventory of Fissionable Material[†]~~

Isotope	Inventory in Individual Unrelated Area
U-235	700g
U-233	520g
Pu-239	450g
Any Combination of above Isotopes	450g

~~[†] Per ANSI/ANS 8.3-1986 paragraph 4.2.1~~

~~Safety Criterion: 3.3-7~~

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3.0 Nuclear and Process Safety

~~The monitoring system shall be capable of detecting a criticality that produces an absorbed dose in soft tissue of 20 rads (0.20 greys) of combined neutron and gamma radiation at an unshielded distance of 2 meters from the reacting material within one minute.~~

~~Safety Criterion: 3.3-8~~

~~Coverage of all areas requiring detection may be provided by a single detector.~~

<p style="text-align: center;">River Protection Project - Waste Treatment Plant Safety Requirements Document Volume II 24590-WTP-ABCN-ESH-02-026, Rev. 0, Attachment 1</p>

4.0 Engineering and Design

4.5 Fire Protection

Safety Criterion: 4.5 - 1

Two reliable and separate water supplies of adequate capacity for fire suppression shall be provided.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 2

Buildings containing a significant quantity of radioactive and/or hazardous material shall be constructed of noncombustible or fire-resistive material, where appropriate.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 3

Confinement of the fire to its origin ~~should~~shall be achieved through passive barriers and by activating systems such as fire and smoke dampers, exhaust fans, and drainage pumps to prevent migration of gases, hot combustion products, and flammable liquids outside the fire area.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 4

Automatic fire extinguishing systems shall be included in all areas subject to loss of Safety Design Class systems, significant life safety hazards, or unacceptable program interruption, unless the Fire Hazards Analysis dictates otherwise.

As determined by the Fire Hazards Analysis special hazards shall be provided with additional fixed protection systems.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

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4.0 Engineering and Design

Safety Criterion: 4.5 - 5

Redundant Safety Design Class systems ([for the protection of the public only](#)) ~~and components should~~ shall be in separate fire areas or protected by equivalent design/means. Redundant Safety Design Class systems (for the protection of the worker and co-located worker) should be in separate fire areas.

Redundant, primary and secondary, fire protection systems shall be provided in areas where Safety Design Class systems and components are vulnerable to fire damage and where no redundant safety capability exists outside of the fire area.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#) ~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 6

The design shall incorporate life safety features including means to notify and evacuate building occupants in the event of a fire, such as a fire detection or fire alarm system and illuminated, protected egress paths.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#) ~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 7

The facility shall include a fire detection system to detect the presence of a fire and activate alarm systems so that measures for confinement and suppression of the fire and personnel evacuation may start promptly. The detection system shall include a means to summon the Hanford Site fire department. The system shall be capable of operation without offsite power.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#) ~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 8

The facility shall include physical access and appropriate equipment to facilitate effective intervention by the Hanford Site fire department, such as an interior standpipe system.

<p style="text-align: center;">River Protection Project - Waste Treatment Plant Safety Requirements Document Volume II 24590-WTP-ABCN-ESH-02-026, Rev. 0, Attachment 1</p>

4.0 Engineering and Design

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 9

The facility design shall provide for the prevention of accidental release of significant quantities of contaminated products of combustion and fire fighting water to the environment. This can be provided by such features as ventilation control and filter systems, curbs, dikes, and holding ponds.

[Such features would only be necessary if required by the FHA or SAR in conjunction with other facility or site environmental protection measures.](#)

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 10

Fire and related hazards that are unique to the facility and are not addressed by industry codes and standards shall be protected by isolation, segregation, or use of special fire control systems, such as inert gas or explosion suppression, as determined by the Fire Hazards Analysis.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 11

Fire protection systems shall be designed, and/or systems and components protected, such that its/their inadvertent operation, inactivation, or failure of structural stability will not result in the loss of a Safety Design Class function.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

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4.0 Engineering and Design

Safety Criterion: 4.5 - 12

The fire protection program shall establish the fire protection policy for the protection of the facility and the procedures, equipment, and personnel required to implement the program. The program shall have the following objectives:

- (1) To prevent fires from starting
- (2) To detect early, control and extinguish promptly those fires that do occur
- (3) To provide protection for Safety Design Class SSCs

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 13

The fire protection program and features shall be characterized by a level of fire protection that is sufficient to fulfill the requirements of the best protected class of industrial risks (“Highly Protected Risk” or “Improved Risk”) and shall be provided protection to achieve “defense-in-depth.”

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 14

A fire protection program shall be developed that will minimize the potential for the occurrence of a fire or explosive threat and, should such an event occur, the program will limit:

- (1) Radiological and hazardous releases from the facility
- (2) The threat to the health and safety of facility workers, [the public, or the environment](#)
- (3) Interruption of the facility mission to process tank waste
- (4) [Damage to Safety Design Class systems \(for the protection of the public only\) as a result of a fire and related events](#)

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 15

The fire protection program [shall](#) ~~will~~ include:

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4.0 Engineering and Design

- (1) organization, training, and responsibilities of the fire protection staff, including a trained and equipped emergency services organization
- (2) inspection, testing, and maintenance of all fire protection systems by personnel properly qualified by experience and training in fire protection systems
- (3) surveillance to ensure that fire barriers are in place and that fire suppression systems and components are operable
- (4) training of all employees in basic fire safety
- (5) periodic performance of fire drills

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 16

The fire protection program ~~shall~~will include a plan to identify, prioritize, and monitor the status of fire protection-related appraisal findings/recommendations until final resolution is achieved. When final resolution will be significantly delayed, appropriate interim compensatory measures shall be implemented to minimize the fire risk.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 17

The fire protection program shall ensure fire protection requirements are documented and incorporated in the plans and specifications for all new facilities and for significant modifications of existing facilities. This includes a documented review by a qualified fire protection engineer of plans, specifications, procedures, and acceptance tests.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 18

The fire protection program shall include a comprehensive, documented fire protection self-assessment program, which includes all aspects (program and facility) of the fire protection program.

[Assessments shall be performed on a regular basis at a frequency established by the WTP Project and approved by the DOE.](#)

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[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 19

Administrative controls shall be established to minimize fire hazards. These shall include procedures to:

- (1) govern the handling and storage of combustible and flammable materials
- (2) govern the handling of transient fire loads in buildings containing Safety Design Class SSCs
- (3) designate staff members responsible for fire protection review of proposed work activities
- (4) govern the use of ignition sources (e.g., through the use of a flame permit system)
- (5) control the expedient removal of combustibles resulting from work activities
- (6) establish compensatory controls for activities which may result in the impairment of fire prevention and/or mitigation features
- (7) maintain periodic housekeeping inspections to ensure continued compliance with these administrative controls

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 20

A Fire Hazard Analysis (FHA) ~~of the facility~~ shall be performed [for all nuclear facilities, significant new facilities, and facilities that represent unique or significant fire safety risks](#). Such a systematic analysis shall divide the facility into “fire areas” and evaluate the fire safety of each area and of the facility as a whole. The analysis shall, for each fire area:

- (1) Account for all radioactive, hazardous, and combustible materials, including estimates of their heat content
- (2) Describe the processes performed and their potential for fire or explosion
- (3) Account for the sources of heat and flame
- (4) List the fire detection and suppression equipment
- (5) Consider credible fire scenarios and evaluate the adequacy of the fire protection measures
- (6) [Document Maximum Possible Fire Loss \(MPFL\) for all nuclear facilities, significant new facilities, and facilities that represent unique or significant fire safety risks](#)

In addition, the FHA shall consider other buildings or installations close to process buildings that contain flammable, combustible, or reactive liquid or gas storage.

The FHA shall confirm that the facility can be placed in a safe state during and after all credible fire and explosion conditions.

<p style="text-align: center;">River Protection Project - Waste Treatment Plant Safety Requirements Document Volume II 24590-WTP-ABCN-ESH-02-026, Rev. 0, Attachment 1</p>

4.0 Engineering and Design

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

DOE-STD-1066-97, *Fire Protection Design Criteria*

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 21

The fire protection program shall be under the direction of an individual who has been delegated authority commensurate with the responsibilities of the position and who has available staff knowledgeable in both fire protection and nuclear safety.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 22

The facility ~~shall~~should have on file, and ready to use, a Pre-Fire Plan. The Pre-Fire Plan should assign individual and alternate responsibilities for responding to a fire alarm or call; assessing the situation, suppressing incipient fires, assembling the emergency service organization, personnel evacuation, orderly shutdown of processes, and safeguarding (if necessary) and control of radioactive and hazardous material.

The plan should clearly indicate, preferably with the help of site plans and drawings, the locations of the fire department-compatible connections and fire-fighting equipment, such as portable extinguishers, automatic fire suppression systems, sectional valves, standpipes, hydrants, and hoses. It should also indicate the areas of concentrations of combustibles, storage of flammable and combustible liquids, and areas where use of water for fire suppression is restricted because of nuclear criticality or other concerns.

The Pre-Fire Plan should be prepared in consultation and coordination with the Hanford Site fire department. The Hanford Site fire department personnel should be given [access for](#) familiarization tours of the facility at least once a year.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program~~

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Safety Criterion: 4.5 - 23

Hot work permits shall be issued for hot work operations conducted in or near the facility. The permit shall document that applicable fire prevention and protection requirements have been implemented prior to beginning the hot work operations; it shall indicate the date(s) authorized for hot work; and identify the object on which hot work is to be performed. The permit shall be kept on file until completion of the hot work operations.

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Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)~~[DOE G-440.1, Implementation Guide for use with DOE Orders 420.1 and 440.1 Fire Safety Program](#)~~

NFPA 801-95, *Standard for Facilities Handling Radioactive Materials*

Regulatory Basis

DOE/RL-96-0006 5.2.8 *Hot Work Control*

Safety Criterion: 4.5 - 24

The Fire Protection Program shall include a process for reviewing and recommending approval of fire safety “equivalencies” and “exemptions” to the DOE or its designated Authority Having Jurisdiction for fire safety.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)

Safety Criterion: 4.5 - 25

Information from the “baseline” needs assessment that establishes the minimum required capabilities of the site fire fighting forces shall be incorporated into the WTP Site Emergency Plan.

Implementing Codes and Standards

[DOE O-420.1, Facility Safety](#)

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Attachment 2

Summary of ISM Process for Revision to Implementing Standards and Safety Criteria

of pages (including cover sheet): 6

Summary of ISM Process for Revision to Implementing Standards and Safety Criteria

1 Purpose

This attachment summarizes and documents the Integrated Safety Management (ISM) process associated with the safety assessment of proposed changes incorporated within this Authorization Basis Change Notice (ABCN).

2 Scope

This attachment is limited to a summary of the application of the ISM process that resulted in the changes associated with 24590-WTP-ABCN-ESH-01-026, Rev. 0. Attachment 1 of 24590-WTP-ABCN-ESH-01-026 document the actual proposed changed to the SRD.

3 Discussion

3.1 Approach

The identification of the proposed changes to the SRD were performed in compliance with project procedure 24590-WTP-GPP-SANA-002, *Hazard Analysis, Development of Hazard Control Strategies, and Identification of Standards*. 24590-WTP-GPP-SANA-002 implements SRD Appendix A and DOE/RL-96-0004, *Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards, and Requirements for the RPP Waste Treatment Plant Contractor*.

The procedure consists of the following major process elements:

- Initiate process
- Identify work
- Hazard evaluation
- Development of preferred hazard control strategies
- Design basis events (DBEs)
- Designation of systems, structures, and components (SSCs) comprising the hazard control strategy
- Identification of standards
- Confirmation of standards
- Record document identification
- Documentation

These are discussed in more detail below.

3.2 Results

3.2.1 Initiation of Process (ISM Team Composition)

Project procedure 24590-WTP-GPP-SANA-002, section 3.10, Identification of Standards states: “Identification of other standards (e.g., standards for quality assurance, conduct of operations, etc.) will be performed by specially constituted teams formed by the [Process Management Team] PMT in support of the [Preliminary Safety Analysis Report] PSAR.”

A multi-discipline ISM team was specially constituted by the PMT to determine the impact to the WTP Project and SRD criterion potential changes to the RES table. The need to establish this team, the selection of an appropriate chairperson, and the type of project disciplines needed was established at the PMT meeting held on June 5, 2002. The team lead selected knowledgeable individuals for each required discipline that were current on the list of qualified individuals (LQI). The team lead also utilized subject matter experts (SME) as needed.

The table below lists the team members and subject matter experts.

Name	Title/Qualification	Department	Team Role
Troy DeGarmo	Fire Safety Lead / LQI	ES&H/Radiological and Fire Safety	Lead/Chairman appointed by PMT
Mark Rees	Architect / LQI	Engineering/Civil Structural	Architectural representation requested by ISM team
Ajit Tiwari	Electrical Engineer / LQI	Engineering/Electrical	SME on WTP electrical cable separation
Karen Lesko	Procedures Manager / LQI	Commissioning and Training/Procedures	C & T Representative
Robert Harshberger	Electrical Engineer / LQI	Engineering/Electrical	SME on WTP electrical cable separation
Jay Lavender	HSA Lead / LQI	ES&H/ Safety Analysis	SME on DBE calculations
Chuck McKnight	Fire Protection Engineering Lead / LQI	Engineering/Fire Protection	Fire Protection Engineering representation required by PMT
Gerard Garcia	HVAC Engineering Lead (LAW) / LQI	Engineering/HVAC	SME on WTP Ventilation
Lexa Mcadams	C&I Representative / LQI	Engineering/C&I	SME on WTP C&I systems
Marshall Perks	Manager, Radiological and Fire Safety / LQI	ES&H/Radiological and Fire Safety	SME on WTP Radiological Safety
David Losey	Criticality Safety / LQI	ES&H/Radiological and Fire Safety	SME on WTP Criticality
Dan Corbett	Fire Protection Engineer / LQI	ES&H/Radiological and Fire Safety	SME on WTP Fire Safety
Rodger Dickey	Safety and Licensing Engineer / LQI	ES&H/Regulatory Safety	SME on WTP ABCNs
Dave Houghton	Civil Structural Engineer / LQI	Engineering/Civil Structural	SME on WTP Seismic considerations

3.3 Identify Work

The purpose of the identification of work step, as intended by the process described in 24590-WTP-GPP-SANA-002 (which implements SRD Appendix A and DOE/RL-96-0004) is so that hazards and hazardous situations inherent in the work can be identified and evaluated. The proposed change does not directly affect the process, hazards, or control strategies. Hazards and hazardous situations are not applicable; therefore, control strategies with standards are not needed.

The result of this process step is that there was no “work” identified. The Hazard Evaluation, Development of Preferred Hazard Control Strategies, Design Basis Events (DBEs), Designation of Systems, Structures, and Components (SSCs) Comprising the Hazard Control Strategy steps are not required. The process should continue with the Identification of Standards step.

3.4 Hazard Evaluation

Not required. See justification in section 3.3.

3.5 Development of Preferred Hazard Control Strategies

Not required. See justification in section 3.3.

3.6 Design Basis Events

Not required. See justification in section 3.3.

3.7 Designation of Systems, Structures, and Components Comprising the Hazard Control Strategy

Not required. See justification in section 3.3.

3.8 Identification of Standards

The standards identification activity required by DOE/RL-96-0004 was used to identify a tailored set of standards and requirements that will assure adequate safety when implemented. The implementing standards selection criteria:

- Provide adequate safety
- Comply with applicable laws and regulations
- Conform with top-level safety standards and principles

3.8.1 Review of DOE Order 420.1 *Facility Safety*

The objective of the ISM team was to determine Project impacts and if improvements to the SRD were needed with the adoption of DOE-O-420.1. The requirement to meet DOE-O-420.1 was requested by the DOE in CCN 032103. Each individual ISM team member reviewed DOE-O-420.1 and compared it against each team member’s respective SRD criterion. From this comparison the team members determined the impact (to the project) of implementing DOE-O-420.1. After determining the impact, the changes to the SRD were proposed and agreed upon by the ISM team. The ISM team agreed that the changes were safe.

3.9 Confirmation of Standards

Based on the results of the ISM process, the PMT recommended the selected proposed revisions to the standards and Safety Criterion to the Project Safety Committee (PSC) Chair at the August 28, 2002 PMT meeting. The PSC Chair requested the PSC confirm that the proposed revised set of standards remain acceptable. The confirmation review approach is to distribute the ABCN for PSC review, present the approved ABCN at a PSC meeting, and reach consensus on approval of the ABCN. Resolution of comments by the PSC on the standards identification are required to be documented; however, no formal comments (PSC actions) were cited in the PSC meeting on August 28, 2002.

3.10 Record Document Identification

Project records required to document this ISM process are the relative PMT and PSC meeting minutes and the ABCN. Completion of the task is documented in PMT and PSC meeting minutes dated August 28, 2002, and by PSC Chair signature on the ABCN.

3.11 Documentation

Following approval of the ABCN by the DOE Office of Safety Regulation, the results of the standards selection ISM process will be documented in the applicable sections of the SRD as indicated in the underline strikeout text in attachment 1 of this ABCN.

4 Conclusions

In summary, the recommended approach provides a safe facility that meets all of the DOE top-level requirements. The following specific advantages exist for using this approach:

- Safety Design Class systems (for the protection of the public only) shall be in separate fire areas or protected by equivalent design/means.
- Option statements (should) in the SRD for Fire and Criticality Safety will be changed to commitments statements (shall) for those Criterion that pertain to DOE-O-420.1.

5 References

Project Documents

24590-WTP-GPP-SANA-002, *Hazard Analysis, Development of Hazard Control Strategies, and Identification of Standards*

24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document*

Codes and Standards

10 CFR 830. “Nuclear Safety Management,” *Code of Federal Regulations*, as amended.

Other

DOE/RL-96-0004. *Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards, and Requirements for the RPP Waste Treatment Plant Contractor*, February 2001. US Department of Energy, Office of River Protection, Richland, Washington.

DOE/RL-96-0006. *Top-level Radiological, Nuclear, and Process Safety Standards and Principles for the RPP Waste Treatment Plant Contractor*, February 2001. US Department of Energy, Office of River Protection, Richland, Washington.

Barr R.C. (Office of Safety Regulation) to R.F. Naventi (Bechtel National, Inc). Letter, “Contract No. DE-AC27-01RV14136 – Office of Safety Regulation (OSR) Application of DOE Order 420.1 Requirements to the River Protection Project Waste Treatment Plant (RPP – WTP), 02-OSR-0152 (CCN 032103), April 16, 2002.